



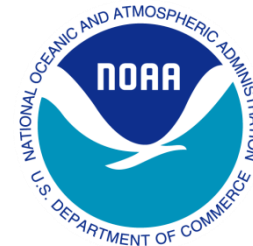
Climate Prediction Center Past, Present and Future Interactions with Stakeholders

David DeWitt

Director, Climate Prediction Center



Outline

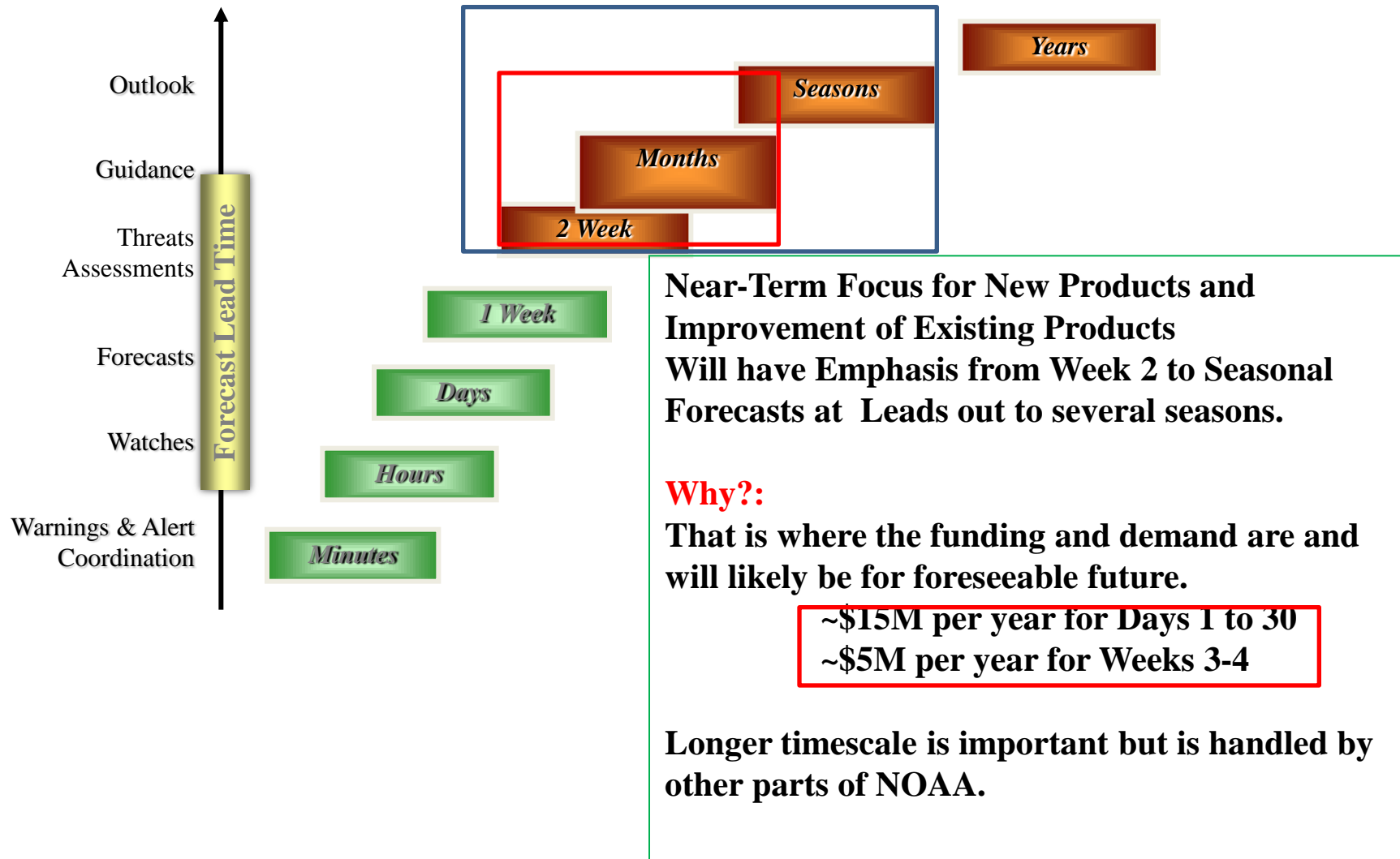
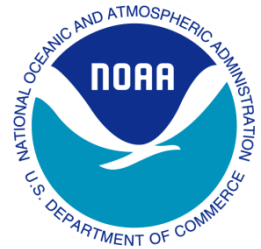


- CPC mission and products
- Current/past deep relationships with core partners
- Challenges/perspective on collaboration
- Upcoming stakeholder engagement and evolving products



CPC Near-Term Focus within NOAA

Seamless Suite of Forecast Products





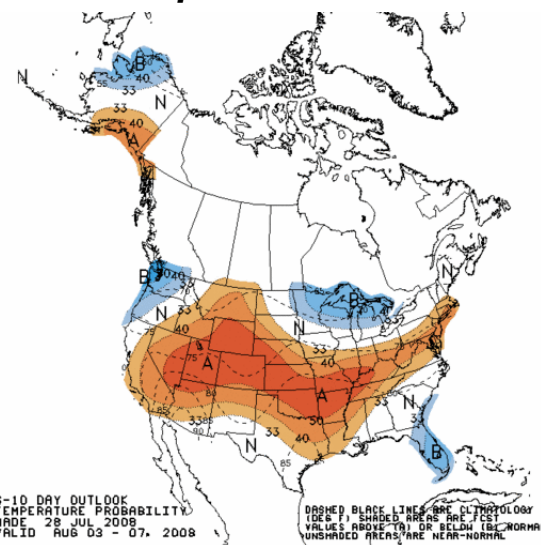
CPC Mission



Deliver real-time products and information that predict and describe climate variations on timescales from weeks to one year thereby promoting effective management of climate risk and a climate-resilient society.

- Focus: weeks, months, seasons, years (i.e. short term climate)
- Integral to NWS Seamless Suite of Products
- Valuable resource for NOAA's efforts to deliver climate services

Temperature Outlook



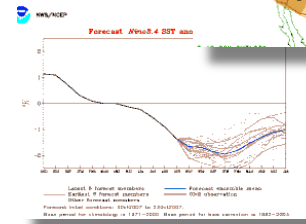
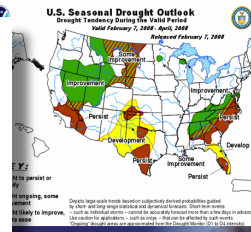
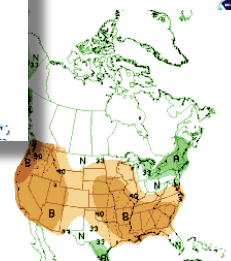
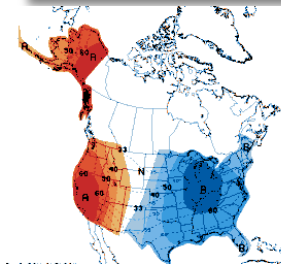
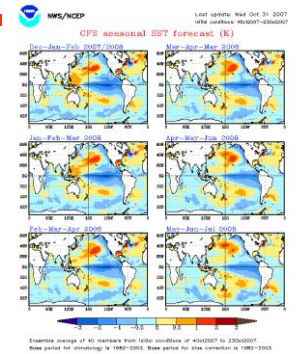


Climate Prediction Products



• Focus on week-2 to seasonal-to-interannual

- 6-10 Day & 8-14 Day Precipitation & Temperature Outlooks
- Day 3-14 Hazards Outlooks (US, Global Tropics)
- Monthly & Seasonal Precipitation & Temperature Outlooks
- Monthly and Seasonal Drought Outlook
- Seasonal Hurricane Outlooks (Atlantic and Eastern Pacific)
- Monthly ENSO Prediction



Human Forecasters Use Various Tools To Develop Prediction Products

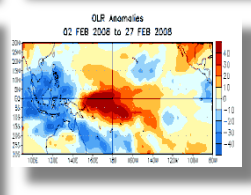
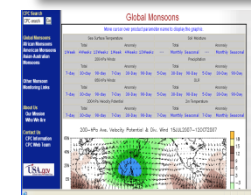
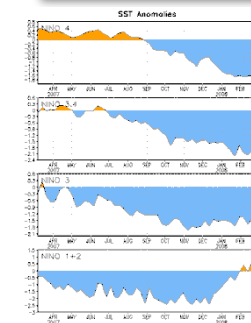
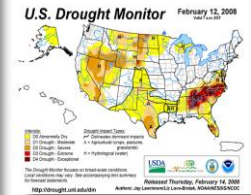
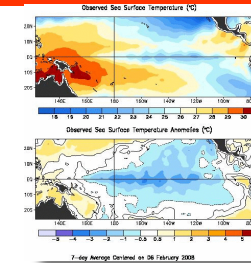
- Dynamical Models
- Statistical Models
- Historical Analogs
- Historical Composites



Climate Monitoring Products



- **Daily and monthly data, time series, and maps for various climate parameters and compilation of data on historical and current atmospheric and oceanic conditions**
 - Primary modes of climate variability (ENSO, MJO, NAO, PNA, AO,...)
 - Atmospheric Circulation (global troposphere and stratosphere)
 - Storm Tracks and Blocking
 - Monsoons
 - Oceanic Conditions (global and coastal)
 - Precipitation and Surface Temperature (global and US)
 - Drought (US, North America; NIDIS)
 - Climate Reanalysis



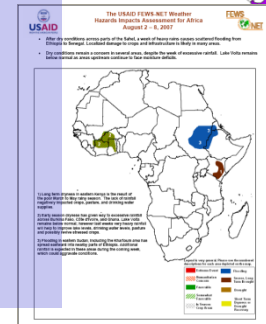
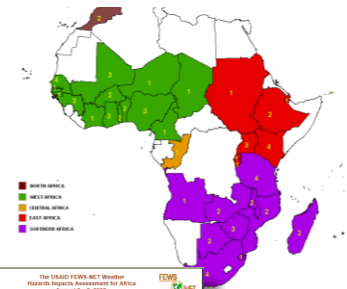


- **CPC International Desks**

- *African Desk*
- *Monsoon Forecaster Training Desk*
- *Activities*

- **Training and Education**
- **Partnerships**
- **Products**

Famine Early Warning System
Hazards Assessments (Africa, global tropics)
Tropical Cyclone Monitoring





Current/Past Deep Relationships with Core Partners



- USDA: Joint Agricultural and Weather Forecasts (JAWF): Weekly Weather and Climate Bulletin
- USAID:
 - Office of Foreign Disaster
 - Famine Early Warning System
- NIDIS:
 - Drought Outlook
 - Drought Monitor
- Pacific RISA and PEAC
- CPO: Ocean monitoring and reanalysis
- NESDIS/NASA: Operational monitoring products
- CLIMAS: Many year relationship that was tremendously beneficial for developing O2R/R2O infrastructure but unfortunately it was not continued.



Exploring New Deep Relationships



- Western States Water Council and California Department of Water Resources.
- Mid-Atlantic RISA (assuming it gets funded).



Science Challenges/Perspectives on Collaboration



- Scale mismatch of current products and certain user needs, i.e. products are too coarse. Energy traders/planners love the outlooks and water resource managers have difficulty using them.
- Short-term climate forecasting is characterized by a small signal and large noise so forecasts are given as probabilities and frequently have low skill due to limited predictability. Need to manage expectations of users regarding skill profile of forecasts but also provide tools for more sophisticated users.
- Evolving product delivery at CPC:
 - Improved static maps guided by rigorous social science and stakeholder engagement
 - User-friendly tools that allow people to choose their own risk tolerance using the official outlook. An example of this would be a probability of exceedance tool. A second evolution of this could be downscaling if the science supports doing this.



Structural Challenges/Perspectives on Collaboration



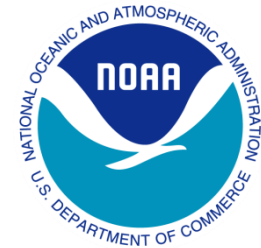
- Need to have co-development of projects with physical scientists and social/applied scientists. Limited resources so need to have as few layers of bureaucracy (preferably one or less) as possible.
- Need scalable and sustainable partnerships. For example, with respect to water resources working with California Department of Water Resources and Western States Water Council delivers more bang for the buck than working with Matawan, NJ water authority.



Stakeholder Engagement



- Needs to be open, transparent, inclusive and rigorous. Physical scientists, application scientists, and decision makers need to meet together with as few layers of bureaucracy as possible. What is added value of each part of chain. Limited resources.
- CPC will conduct an open, transparent, inclusive and rigorous stakeholder engagement process in next 6 to 9 months. Goal of this initial exercise will be to better understand how people use our products and how we can evolve their representation to better enable decision support services. If you are interested in participating please send me an e-mail (david.dewitt@noaa.gov) with subject: CPC Stakeholder Engagement.



Backup Slides



ANALYZE, FORECAST & SUPPORT

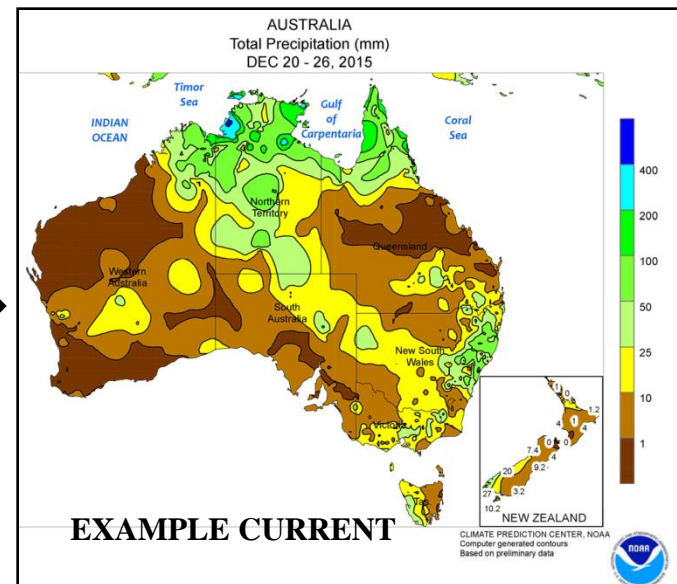
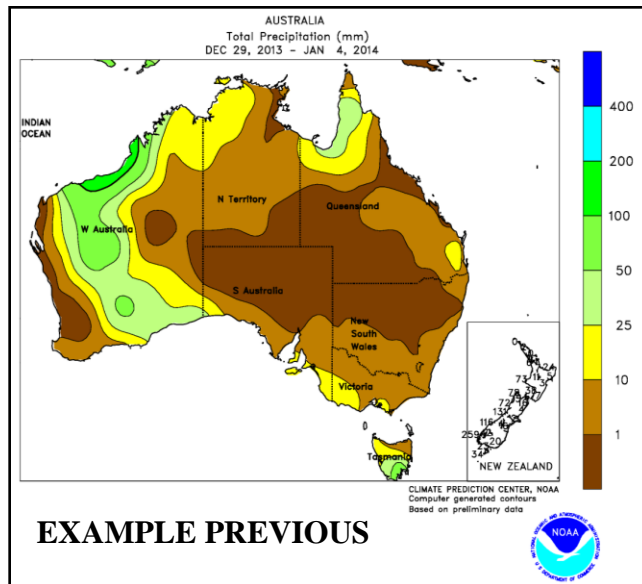
FY2015-2016 Accomplishments:

Joint Agriculture Weather Facility (Deep Relationship with USDA)



Conversion & enhancement of map graphics for publication in *Weekly Weather and Crop Bulletin (WWCB)*:

- o Increased quantity & quality of data into U.S. and International areas;
- o Switch to hi-res GIS graphics from outdated NCAR Graphics;
- o Additional automation & flexibility of *WWCB* map production suite & dissemination;

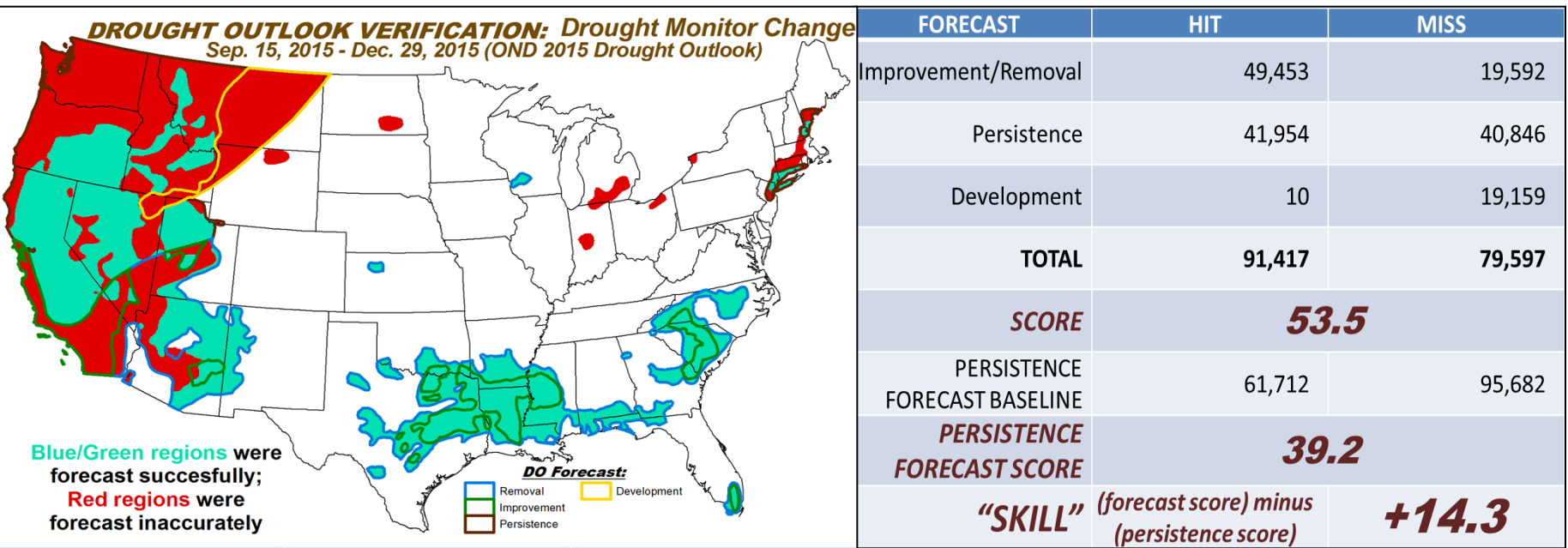




ANALYZE, FORECAST & SUPPORT FY2015-2016 Accomplishments: Drought Outlooks and Drought Monitor



- Accurate El Nino predictions led to successful forecast of dramatic drought improvement across the South during late autumn and early winter
- Drought outlooks verification process improved significantly decreasing production time
- New drought monitor tools [reservoir capacities and monthly Standardized Precipitation Evapotranspiration Index (SPEI)] aid long-term drought monitoring





National Academy Assessment of State of Interseasonal to Interannual Climate Prediction and Predictability (2010)



Main Conclusions for Improving Short-Term Climate Forecasts:

- There are no “silver bullets;” there is no single action that will lead to a revolutionary leap forward in ISI predictions.
- Incremental increases in ISI forecasting quality are to be expected as the building blocks of ISI forecasts are improved and we increase knowledge of sources of predictability.